

## A MORPHOLOGICAL STUDY OF WORTHINGTON, OHIO.<sup>1</sup>

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Many of the factors affecting the location, development, and future status of any urban center are of a geographic nature. These factors vary with time and place. Leighly states that, "Their combination at a given place and moment of time is probably absolutely unique."<sup>2</sup> Thus, although the results of the following study of Worthington, a suburban village of Columbus, Ohio, are no doubt true in a broad way of suburban towns in general, the primary interest of this paper is the description and explanation of the unique phenomena in the morphology of this particular chorographic unit.

### HISTORICAL BACKGROUND.<sup>3</sup>

During the winter of 1801-02, a colonizing association known as the Scioto Company was formed in the states of Massachusetts and Connecticut. The following spring Col. James Kilbourne, one of the members, set out for the Ohio territory in search of suitable land for purchase and settlement. After traveling many miles on foot through the wilderness, he selected 16,000 acres of land on and near the Olentangy River in what is now Sharon township of Franklin County, Ohio.

In "Articles of Association," the members of the company had agreed in writing that two roads should be laid out in this newly purchased tract; one to run north and south, the other east and west. It was further agreed that a village of one hundred and sixty acres, divided into one hundred and sixty lots, should be laid out at the intersection of the roads. The four lots lying on the four central corners were to be reserved as a public square, and one lot each was to be reserved for church and school purposes. The first settlers arrived on the 20th day of October, 1803, and the following May the village of Worthington was laid out as planned.

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<sup>1</sup>The writer wishes to acknowledge the assistance of Dr. Guy-Harold Smith, Department of Geography, Ohio State University, under whose direction this investigation was made.

<sup>2</sup>John B. Leighly. "The Towns of Malardalen in Sweden, A Study in Urban Morphology," *University of California Publications in Geography*, Vol. 3, No. 1, 1928, p. 3.

<sup>3</sup>"*History of Franklin and Pickaway Counties, Ohio*," Cleveland, 1880, pp. 418-433.

## THE FACTOR OF SITE.

The first settlers naturally settled on a site considered the best for the proposed community, a site which met the demands of early Worthington in an admirable way. The retreat of the glacier left the region a till plain in which the drainage system as a rule cut out valleys and glens having steep bluffs rising from narrow flood plains. However, the bluff upon which Worthington was located rose from the east side of the Olentangy with a more gradual slope than usual. Two tributary creeks had by headward erosion formed a saddle which isolated a summit part way up this slope. Worthington's public square and the intersection of its two main streets were placed exactly at the top of this summit. The village was therefore well drained in every direction.

Good drinking water, made accessible by natural springs and driven wells, was to be had from the lenses of gravel common in the glacial till. The location of the community on a west facing bluff heightened the agreeable and invigorating nature of its climate. Nearby level uplands, occupied by intermingling tracts of hardwood forest and open prairie, provided natural resources of value in the establishing and maintaining of the settlement. Along with the rich bottom lands of the Olentangy, these uplands furnished suitable lands for agriculture. The forests supplied timber and fuel, but were not so dense as to dishearten the people or to hinder greatly the development of agriculture and transportation. The former head of Olentangy navigation was at a falls just above the village, and for a number of miles upstream from this point, swift flowing shallows provided tempting mill sites. Communication from the village to the immediate locality was easy.

The relationships between man and environment are dynamic, however, and thus some of the former advantages of Worthington's site are of little present-day importance. The water power sites and the navigability of the Olentangy are no longer of prime significance. The forests have disappeared, but the fertile fields remain. The drainage factor is also still important, and the principal source of water supply is still from artesian wells near the village. The greatest advantage of site at present, however, is that ample room exists for comparatively unrestrained growth of the village. Only the steep west bluff on the opposite side of the Olentangy offers any serious obstruction.

## FACTORS OF SITUATION.

The situation of their village probably gave the founders of Worthington little worry, for as yet few settlements existed in Ohio. Conditions of communication forced each of these to be largely self-sufficient, and being so, their location one to the other was not nearly so basic a consideration as was the selection of suitable local sites. Nevertheless, one angle of situation usually considered in these early times was accessibility to a route connecting the frontier with the mother states east of the Appalachians. By way of the Scioto River, Worthington had easy access to the Ohio River, the chief route of interior travel and trade of that time.

In 1812 the city of Columbus was founded as the result of the location there of the State Capital. This would appear to be the critical point in both the history of Worthington and Columbus. Worthington made a strong competitive bid for the capital, but due to a political maneuver lost out at the last moment. Though the site of Columbus was more favorable for the growth of a large city, there is reason to believe that had the capital been established at Worthington, the relations of Columbus and Worthington would be much different today. At all events, the location of the capital at Columbus gave it the impetus which made it the larger city. Proximity to this large and growing city has been the greatest single factor of situation influencing Worthington's morphology.

Columbus naturally became the focus of communication routes. In 1823, the legislature passed an act incorporating a joint stock company for the construction of a Columbus to Sandusky Pike. This road, following the east bluff of the Olentangy, passed through Worthington. It connected with the Scioto Trail and the National Road at Columbus, and soon became a principal route of travel to northern Ohio. Today it is a part of the important Portsmouth, Columbus, Toledo, State Route 23. The main east-west street of Worthington became a part of the Newark to Marysville Pike. Thus Worthington was and is well situated so far as road communication goes. In 1868, the Sandusky Branch of the Cleveland, Columbus, and Cincinnati Railroad was built. It nearly missed Worthington, for in order to avoid the making of a large number of cuts, fills, and bridges, the right of way followed the level interior of the till plain considerably east of the Olentangy. The railroad in so nearly missing

Worthington probably influenced the plan of the town somewhat, as will be shown.

#### FUNCTIONAL CHANGES AS DEMONSTRATED BY WORTHINGTON.

For a time after its founding, Worthington probably performed a purely rural function. The first settlers entered a virgin territory where they were not constrained by former inhabitants to settle definite spots. Man being normally a gregarious rather than a solitary creature, these pioneers settled in a group. The nature of their settlement was reminiscent of the New England villages from which they had emigrated. Its compact character prepared it for Indian attacks which never materialized, while enough land could be cleared within a radius of say two miles to form a sufficient physical resource for the support of the people. To meet the simple needs of the people, the products of this resource were slightly processed by such embryonic industries as the grist, shoddy, and saw mills. The village common was the dominating influence, for around it revolved the religion, politics, education, commerce, and home life of the village. It was the common ground for exchange of goods, experiences, and ideas. Thus early Worthington furnished for a time an environment of agriculture, local common interests, and all-around living.<sup>4</sup>

Worthington did not for long retain this rural character. Later settlers, forced to take land farther and farther from the rural center, found it more advantageous to live on the land they were working rather than to travel back and forth to the village morning and evening. Thus, although Worthington still acted in a rural capacity for some of its inhabitants, its function as a cross roads service center for the surrounding country became more important. The dominating factor was no longer the common, but the larger agricultural area.

The population of Worthington had increased from 100 in 1804 to 440 in 1840.<sup>5</sup> Broadly speaking it might be said that a population of 100 to 200 represented the era of rural function, while one around 400 represented the era of cross roads function. From 1840 to 1880, with the exception of a minor fluctuation in 1860, the population remained practically stationary. The census of 1860 recorded 349 people. This temporary drop was

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<sup>4</sup>Benton Mackaye. *"The New Exploration, A Philosophy of Regional Planning,"* New York, 1928, p. 59.

<sup>5</sup>Population statistics from United States Census Reports.

probably due to migration to more western lands. Shortly after 1880, however, the population took a sudden drop and did not again rise above 400 until 1900. In 1890 the population was only 341. It is not at all improbable that the fall in population at this time was caused by the removal of part of the inhabitants to Columbus, for along about 1880 the great industrial consolidations and the consequent growth of banking and insurance facilities caused a wide-spread migration to the cities. Worthington was becoming a drained village so common at that time. Thus for the first time Columbus became the dominating influence in the history of Worthington. The village still retained its cross roads function, but to a greatly lessened degree, however, for with the growth of transportation facilities, the sphere of Columbus influence was greatly enlarged. Many farmers who formerly came to Worthington now went to Columbus to do their marketing and buying.

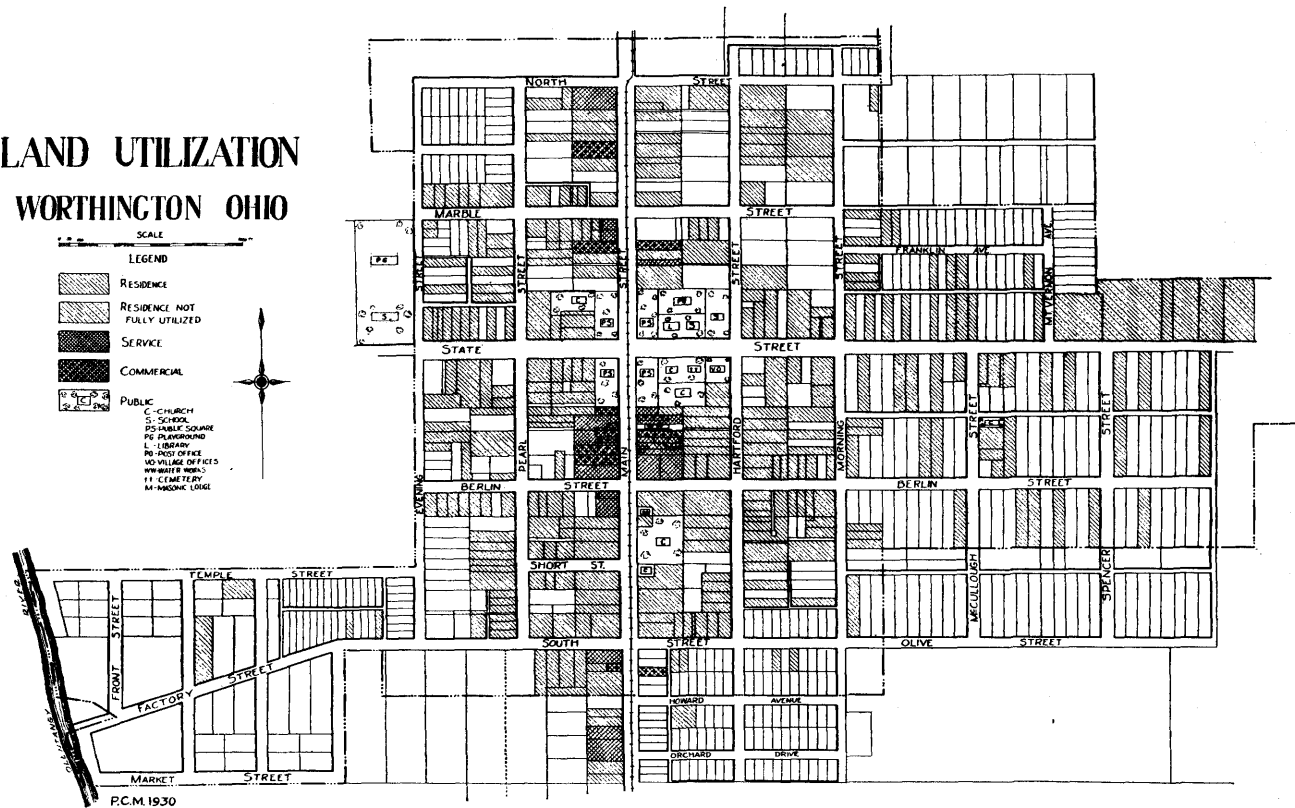
The sudden migration to the larger cities soon proved somewhat of a boomerang, and a counter flow set in. With development of transportation facilities, people in search of enough ground and air to afford them better living conditions than could be found in the city, moved to the suburban areas and commuted to their work in the city proper. Worthington was close enough to Columbus to profit by this backwash, and from 1900 to the present time its population has increased. In 1910 it was 547; in 1920, 705; and in 1930, 1,239. During this period Columbus still was the dominating influence, but now in such a way as to change Worthington's predominant function to that of a suburb of the super-urban Columbus.

With the corporate limits of Columbus now within one and one-half miles of those of Worthington, where formerly a space of nine miles separated them, and with both the centers constantly increasing in population and size, it is rather sound theory to forecast their union within a few years. Worthington will have become a submerged village, losing its identity to that of Columbus as a whole. It will then be serving a new function, that of a sub-retail area of Columbus.

#### GENERAL GROUND PLANS.

The original political pattern of Worthington included one hundred and sixty acres as provided for by the "Articles of Association." This rectangular plot was laid out with its main axis along the north-south road. The first subdivision to be

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added, lay to the east of the original plot where a level continuity of relief afforded satisfactory building sites. The expectancy that these sites would soon be utilized doubtless caused their inclusion in the political unit. Later when the railroad passed slightly to the east of the village in 1868, the desire to have an outlet in this direction probably led to the further extension of the political boundary towards the east. In temperate zones, if no constraints exist to westward expansion, the growth of an urban unit is often westward since the prevailing winds makes the westerly sections more healthful. Two hundred acres just west of Worthington as originally laid out, were reserved for Church and School purposes by the "Articles of Association." This fact has to date no doubt prevented the inclusion of this land within the corporation limits, although the political boundary has been extended to include an area of subdivided land lying to the southwest.

The human occupancy pattern of Worthington, or the areas of land actually occupied by buildings, has assumed the shape of a rude cross which is elongated in an easterly direction. At the intersection of its arms is the public square. The core of the village, a region of low dwelling density, but complete space utilization for business and public purposes, is just to the south. The first settlers naturally built their homes around the public square at the intersection of the two main roads. As more settlers came, expansion was primarily along the more important north-south road to points where the glens of tributary creeks of the Olentangy formed temporary barriers. Growth then took an eastward direction along the main east-west road which gave access to the level upland till plain, joined the original road from Zanesville to Columbus at Newark, and later gave access to the railroad. Expansion in a westerly direction was constrained beyond a certain point by School and Church ownership of the land and by natural restrictions furnished by the Olentangy River. As expansion progressed along these main routes, the intermediate areas were gradually being occupied. The human occupancy pattern has now expanded beyond the glens which partially blocked north-south growth and in the near future it is probable that the greatest growth will be in these directions.

Lands lying in the path of probable directions of human occupancy are usually subdivided long before their use as building sites is demanded. Human occupancy of lands may

take place spontaneously in some unforeseen direction, but no sooner does this happen than lands in that direction are subdivided in expectancy of further expansion. Then again, isolated subdivisions may be established outside of the general forecasted path of expansion with the hope that they can be exploited in such a way as to draw the occupancy pattern in that direction. Worthington's pattern of expectancy of future human occupancy, or the pattern of the various idle or partially idle lands subdivided and held for speculation, though irregular, extends farther to the north and south than in other directions.

#### MORPHOLOGY OF COMPONENT UNITS: THE LOT.

The lot is the truest and basic component unit of the village, for upon the lots are placed the cultural units which combine to form the village. Worthington was first laid out in rectangular parcels, roughly 134 x 252 feet, or about an acre in area. (See map.). During the first few years when the people lived in the village but gained a living from the outlying fields, the lot on which they lived had to be large enough for the home, a vegetable garden, a barn and other buildings. Land was cheap and plentiful. Thus, the first division of the village land into acre units would seem to be a natural arrangement.

As time went on and Worthington no longer performed a purely rural function, it was not necessary for the lots to be as large as formerly. Land was less plentiful and more valuable as population increased. Since street assessments were based on front footage, it was cheaper to have narrow lots. Thus in the first sub-division just east of the original village, plots 66 x 332 feet were laid out. Another probable reason for the narrow frontage of these lots was the desire of the subdivider to have as many lots as possible facing the main streets. As peripheral expansion takes place, there is also a simultaneous interior expansion. Thus many of the acre lots in the original village were cut up to meet the new conditions.

Still later, as land became even more valuable, complete space utilization was increasingly important. The era of individual self-sufficiency had passed. No longer were vegetable gardens the rule. Village land was becoming too valuable to be used as garden space. Consequently the size of the lot in the most recent sub-divisions averages about 50 x 150 feet. This is large enough for the home, the garden and the small yard.

A glance at the map and the restraining influence of the past



is apparent. Natural property divisions of the past become weaknesses of today.<sup>6</sup> The original acre plots have been broken into lots of various sizes, many of which approach present-day standards. But these acre plots cannot be completely broken up into the smaller lots of today unless additional streets are laid out. This has been done in the re-parcelling of the north west square. (See map.) The establishment of more streets would also help to bring the long lots of east Worthington into tune with present day needs.

#### THE STREETS.

Early Worthington was laid out according to a definite preconceived plan. The streets followed a rectangular pattern. In other words they intersected at right angles and in the case of Worthington ran in true north-south and east-west directions. A street pattern of this nature is easily laid out. It gives straight streets, facilitates location, and makes possible the division of the land into rectangular or square units. One prerequisite, however, is that the physical landscape be fairly uniform.

The two main streets intersecting at the center of the original plot are 99 feet wide. The first streets away from this intersection in every direction are 66 feet wide. The four intersections of the second streets away in every direction form the corners of the original village. These streets are  $49\frac{1}{2}$  feet wide. No alleys were provided for in the original plan, and except for private use few have been added. Today this section which represents the original village retains the streets as first laid out, except for the addition of two new streets as the result of changes in the size of lots. Individual land parcels may be split or a building moved, but the alteration of a street to any great degree is rather hard since it has become fixed in regard to all buildings and land units along its length.

In Worthington, planned peripheral expansion has usually anticipated that of a spontaneous nature. The first addition, to the east of the original village, was on fairly level land which permitted the continuation of the general rectangular plan without much difficulty, although it was modified somewhat through the inclusion of more streets as a result of the different shape and size of the lots. Recent subdivisions north and

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<sup>6</sup>Robert S. Platt. "Geography of a Sugar District, Mariel, Cuba," *Geogr. Rev.*, Vol. XIX, 1929, p. 604.

south of the village have a planned pattern, but one which illustrates more recent subdivision practices. The pattern is irregular in many places in that streets are laid out to conform with natural features. At other places the streets are curved for purely aesthetic reasons. Thus, as these new subdivisions become a part of the village, the rectangular symmetry of the present street pattern will be destroyed.

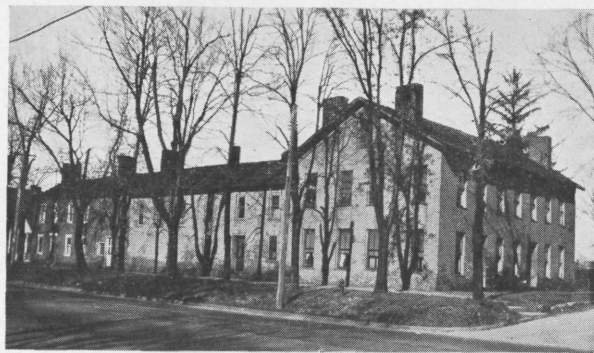
#### THE HOME.

Rude log cabins constructed from the most plentiful and easily used building material at hand satisfied the new settler's immediate need for shelter, but no sooner had the routine life of the village been established than these log huts began to be replaced by the type of home the people had been accustomed to in Massachusetts and Connecticut. The log cabins have thus disappeared, but many of the colonial type homes of the next period are still standing. The most common is the characteristic two-story, rectangular, brick building with a chimney at each end. The long axis of these houses paralleled the street. Often several were built end to end, a customary trait inherited from the east where the earlier homes had been constructed in this manner around the public square as a center and thus presented a solid front to Indian attacks. (Figure 1.)

Following the colonial period came an intermediate period during which the size of homes was increased. (Figure 2.) Homes of several types are representative of this period when style dictated that each house have one or more rooms standing idle a great part of the time, to be used only on special occasions. Building materials were plentiful and comparatively cheap. The houses were either of brick or timber, and were as a rule set back fairly well from the street. Those built during the latter part of the period were more commonly of timber since the extensive exploitation of our forest resources at that time made wood the cheapest building material.

The modern homes are the familiar types of small, fully lived in, well constructed units. These are set near the street, leaving only a small front yard with a fair-sized yard to the rear. Situated sometimes in connection with or near the house, other times at the rear of the lot, and usually attained by means of a front drive from the street, is the garage. This is the only outbuilding customary with the modern home unit. As yet few doubles and only one apartment house exist. The

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FIG. 1. (Upper.) Colonial type buildings. Note end to end construction and characteristic chimneys. This group once served as a tavern, and is now utilized as residences. The building to the right fronts on the public square.

FIG. 2. (Lower left.) One type of residence constructed dur-

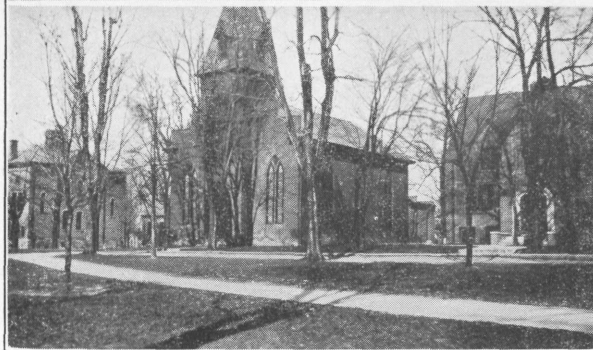
ing the intermediate period. The mansard roof, architecturally of French origin, was popular about this time because it afforded an increased top story area.

FIG. 3. (Lower right.) Worthington's only apartment house was formerly a girls dormitory for a now defunct normal school.

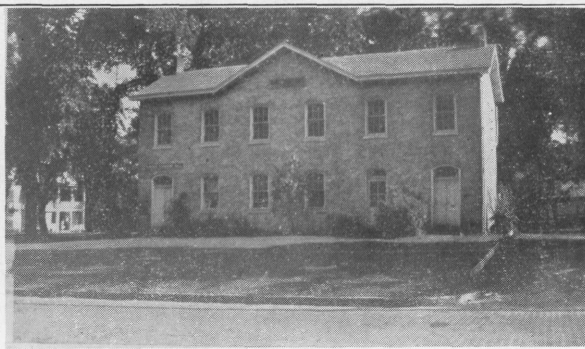
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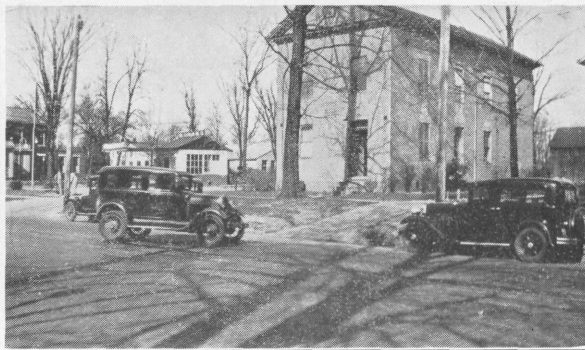


FIG. 4. (Upper left.) Part of the retail district. On the right is the oldest standing building in Worthington. At one time part of an inn, later used as a school building and still later as a residence, it today serves as a funeral home. The next building to the left was recently destroyed by fire, and has been replaced by a modern storeroom, the colonial design of which harmonizes with the buildings on either side.

FIG. 5. (Upper right.) A building constructed in 1856 for public school purposes, and used since 1871 as Corporation and Township offices.

FIG. 6. (Lower left.) The oldest church in Worthington; built in 1828. A corner of the larger modern church, recently built on the same lot, is seen to the right. In the background to the left is a school building; in the foreground part of the public square.

FIG. 7. (Lower right.) Built in 1820, the Masonic Hall is a good colonial type building. It is the oldest Masonic building west of the Alleghenies and is said to be the oldest building in the United States that has always been used exclusively for Masonic purposes.

apartment building represents the present utilization of a building formerly used as a dormitory, first for a Methodist Female Seminary, and later for a Normal School replacing it. (Figure 3.)

#### THE PUBLIC BUILDINGS AND GROUNDS.

Commons were characteristic features of early New England villages, and as already indicated the first settlers carried the idea along to embody it in the structure of Worthington. In spite of the passing of its combined speaking and band stand, the public square still serves as the place of occasional public gatherings. Besides providing for a public square, the village founders provided land for school and church purposes. Coming from a section of the country benefited by good schools, they naturally showed a great interest in education. Almost the first building to be erected was used as a school house. In 1808 the Ohio Legislature passed an act incorporating a school under the name of Worthington Academy, later known as Worthington College, and still later as the Reform Medical School. This last removed to Cincinnati in 1843. The old college buildings were then used to house grade school until they were torn down and replaced by the present public school buildings in 1875.

A preparatory school for Kenyon College at one time occupied the old Kilbourne Hotel, which was situated on the southwest corner of the public square. This school was abandoned in 1863 and the building subsequently served for some time as a residence. The portion still standing today is utilized as a funeral parlor. (Figure 4.) A Methodist Female Seminary, later the Ohio Central Normal School, flourished for a time in Worthington and left its mark on the morphology of the village in the present apartment house.

The first public school building erected after the passage of the State School Law was built about 1856 in the rear of the Episcopal church lot. Its upper story was leased for a term of five years to the Independent Order of Odd Fellows. (Figure 5.) In 1871, upon the removal of the school to the old College buildings, this building was sold to Worthington Corporation and Sharon township and has since been utilized for village offices. At present, in addition to the grade school building on the village school lot, a recently built modern centralized high school occupies the school lands just west of the village.

The oldest standing church building was built in 1828 on the church lot southeast of the public square. Recently replaced by a new building, it is now little used. (Figure 6.) Besides this new St. John's Episcopal Church, the Methodist and Presbyterian denominations both have large modern church homes. Burials in a cemetery established at an early date on the rear of the church lot have long since been discontinued, but many of the old graves still remain.

#### THE INDUSTRIAL UNIT.

Today not one industrial unit exists in Worthington. Small units such as the tannery, saw mill, grist mill, cooper shop, cabinet shop, and woolen mill, which existed during the era of community self-sufficiency prior to the industrial consolidations of the 1880's, have disappeared. Many of these small industries were housed on the same lot as the home of their owner and operator. They were thus confined to no specific locality in the village. One rather interesting industrial experiment, a forerunner of the modern factory system, took place in early Worthington. In 1811, Col. Kilbourne and others incorporated a stock company under the name of the Worthington Manufacturing Company. A tannery, a shoe shop, a cloth mill, a hat shop, a blacksmith shop and other industries were combined under one roof and one management. This company flourished for a time, having outlets through stores in Worthington, Columbus, and Franklinton, but it finally failed. The factory was located southeast of early Worthington on land now within the corporation limits. A building used as employees' living quarters is still standing.

#### THE RETAIL BUSINESS UNIT.

Today the retail business district of Worthington is concentrated on High Street just south of the public square. (See map.) Formerly several stores lay north of the square, but most of these have disappeared. Several causes might be advanced for this concentration south of the square. The location of Columbus probably played some part in the drawing of the units in this direction, but this is a rather intangible factor whose importance is hard to determine. Probably a more important factor was that in addition to the buildings originally constructed for store purposes, there existed here several old colonial type homes which, after their days of

residential usefulness, were easily remodeled into inexpensive store rooms. (Figure 4.) Only one or two modern store buildings exist. Then too, the population of Worthington is densest in the southern part of the town and the stores are thus nearer the people. It is interesting to note that only stores providing day by day necessities are found in Worthington. When the inhabitants need something other than groceries, drugs, notions, or hardware goods, they go to nearby Columbus where the larger specialty stores furnish better selections and values. Most of the groceries are sold through chain stores, and it seems to be characteristic of these to locate in close proximity to each other. One type of retail establishment is precluded by its nature from joining in the central concentration. This is the antique shop.

#### THE SERVICE STATION.

Garages, filling stations, banks, restaurants, barber shops, etc., may be considered as service units. Here in many cases the influence of Worthington's location to Columbus is distinctly evident. It is clear that the people of Worthington alone do not support the five restaurants. These are largely dependent on the patronage of persons driving out from Columbus and upon tourists. The same is true of the garages and filling stations. It is interesting to note that the greatest number of filling stations are on the west side of High Street. This might indicate that they are located thus to be best situated to get the trade of the Columbus motorist entering the village with an empty tank after a long drive in the country, or of the commuter who fills his tank before departing for the city. The service units, other than the filling stations, are concentrated for the most part in the central business district along with the retail stores. It first appears surprising that Worthington has no moving picture house, but with access to the superior play houses of Columbus, the people have little use for a minor neighborhood theatre.

In closing, it might be well to state that although geographic factors explain to a certain extent the morphology of a chorographic unit, they will not entirely do so. However, the geographic approach seems to be justified in the study of the structure and function of urban units.